## REMARKS

### The Claim Amendments

After the above amendments, claims 71, 74–83, and 100–126 are pending.

Applicants have amended claims 71, 79 and 104 to improve their form. Applicants have further amended claims 71, 79 and 104 to recite the function of the DNA molecule when it is expressed in a transgenic plant cell, as suggested by the Examiner. Applicants have further amended claim 104 to rewrite it in independent form. Support for the amendments may be found, *e.*g., in claim 40 as originally filed; on page 8, lines 20–29; page 10, lines 27–31; and page 12, lines 21–24 of the specification.

Applicants have amended claim 74 to improve its form. The deleted clause is essentially recited in claim 71, from which claim 74 depends. Applicants have further amended claim 74 to recite a more preferred percent sequence identity. Support for the amendment may be found, *e.g.*, on page 24, lines 25–27 of the specification.

Applicants have amended claims 77 and 78 by rewriting them in independent form.

Applicants have amended claims 80–82 to improve their form and recite proper claim dependencies.

Applicants have amended claim 100 to recite the function of the introduced DNA molecule. Support for the amendment may be found, *e.g.*, on page

5, lines 18–22; page 8, lines 20–29; page 10, lines 27–31; and page 12, lines 21–24 of the specification.

Applicants have amended claims 105–110 to improve to recite a more preferred percent sequence identity. Support for the amendments may be found, *e.g.*, on page 24, lines 25–27 of the specification.

Applicants have amended claim 112 to improve its form.

Applicants have amended claim 113 to improve its form and to recite the function of the DNA molecule of the DNA molecule when it is expressed in a transgenic plant cell. Support for the amendment may be found, *e.g.*, on page 10, line 32 to page 12, line 12, and page 40, line 11 to page 41, line 11 of the specification.

Applicants have amended claim 114 to improve its form and to recite the function of the DNA molecule of the DNA molecule when it is expressed in a transgenic plant cell. Support for the amendment is found, *e.g.*, on page 10, line 21–31; page 11, lines 6–14; page 12, lines 14–19; and page 12, line 26 to page 13, line 2, and page 41, lines 1–34 of the specification.

Applicants have amended claims 116 and 117 to recite a more preferred percent sequence identity. Support for the amendments may be found, *e.g.*, on page 24, lines 25–27 of the specification.

Applicants have amended claim 118 to place it in proper dependent form.

Applicants have added claims 121–126 to recite additional subject matter applicants view as the embodiments of the present invention. Support for the added claims may be found, *e.g.*, on page 3, lines 10–13 and 23–29; page 7, lines 22–

32; page 8, lines 20–29; page 10, lines 8–25; and page 122, lines 21–24 of the specification.

None of the amendments adds new matter. Their entry is requested.

Applicants thank the Examiner and her supervisor for their assistance during the May 28, 2002 telephone interview with applicants' representatives. In that interview, the rejections made in the October 9, 2001 Final Office Action of the parent application of the instant Continued Prosecution Application were discussed.

## THE OFFICE ACTION

### The Drawings

The Examiner has stated that formal drawings are required in response to this Office Action. Accordingly, applicants submit herewith formal drawing sheets 1–10.

### The Rejections Under 35 U.S.C. § 103

The Examiner has rejected claims 71, 74–76, 79–85, 88, 91, 94–101, 104–105, 108, 111–112 and 115–120 for being unpatentable over Unger *et al.* (*Plant Mol. Biol.* 13: 411–418, 1989; hereafter "Unger") and Shewmaker et al. (U.S. Patent 5,107,065; hereafter "Shewmaker").[1] The rejection is identical to the rejection made in the October 9, 2001 Final Office Action in the parent application. Applicants traverse.

Briefly, the Examiner alleges that Unger teaches a citrate synthase protein and gene therefor from *Arabidopsis thaliana.* The Examiner further alleges that the citrate synthase protein taught by Unger exhibits over 65% "structural match" to SEQ ID NO: 2 and the DNA sequence exhibits nearly 30% overall structural identity to SEQ ID NO: 1, including stretches of at least 15 basepairs that exhibit 100% identity. The Examiner admits that Unger does not teach fusing the citrate synthase gene or portion thereof in antisense relation to a plant functional promoter.

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[1] Applicants note that claims 84–99 were canceled in the November 12, 2002 Preliminary Amendment filed concurrently with the Continuation Prosecution Application. Accordingly, applicants do not believe that these claims should be part of the rejection.

The Examiner alleges that Shewmaker teaches that regulation of expression in plant cells may be achieved by integrating a DNA sequence in antisense orientation to reduce the function of a naturally existing DNA. The Examiner contends that Shewmaker teaches that a DNA sequence of at least 15 basepairs may be used in such a way and that the DNA sequence may be fused to a promoter functional in plants. The Examiner further contends that Shewmaker teaches that this regulation of expression is useful for modulating the phenotypic properties of a plant, including modulation of metabolic pathways. The Examiner contends that inhibition of flowering may be one such phenotypic property.

The Examiner then argues that it would have been obvious for one of ordinary skill in the art to have used the DNA sequence for the citrate synthase gene taught by Unger and followed the teaching of Shewmaker to produce a DNA construct comprising a portion of at least 15 basepairs from or with at least 65% identity to a DNA sequence encoding the citrate synthase fused to a plant functional promoter. The Examiner asserts that one would have been motivated to make this construct because Unger teaches the importance of citrate synthase for studying the balance of energy-generating processes available to photosynthetic cells. The Examiner further argues that one would have expected that antisense RNA use would inhibit citrate synthase with a reasonable expectation of success.

The Examiner admits that Unger does not teach any relationship between citrate synthase and flower formation, but argues that one skilled in the art would have found it obvious to use antisense RNA for citrate synthase for reasons

such as studying the balance of energy-generating processes available to photosynthetic cells or for modulating metabolic pathways.

In the May 28, 2002 telephone interview, applicants' agents addressed the October 9, 2001 Final Office Action and the above rejection under 35 U.S.C. 103(a). Applicants argued that there was no motivation to combine Unger and Shewmaker and certainly none in the documents themselves. Unger states only that one could use the expression-controlling sequences of the citrate synthase genes to study their effects on genes involved in energy-generated processes and to gather information on targeting polypeptides to a plant mitochondria. Shewmaker only generally teaches the use of antisense DNA. It does not teach or suggest the citrate synthase gene. And, Shewmaker only generally discloses the use of modulating metabolic pathways. It does not teach modulating citrate synthase production. Moreover, neither Unger nor Shewmaker provides any motivation to decrease the activity of citrate synthase.

Prior to the instant invention, it was not known that decreasing citrate synthase would inhibit flower formation. Nothing in the art taught one to decrease citrate synthase to inhibit flower formation, to reduce the sprouting of tubers and/or to increase the storage capability in a storage organ. Furthermore, there is nothing in Unger or Shewmaker that creates a nexus between inhibiting flower formation, reducing sprouting of tubers or increasing storage capability in a storage organ and decreasing citrate synthase activity.

During the May 28 telephone interview, the Examiner indicated that the pending claims may be allowable if claim 84 were canceled and if claims 71 and

104 were amended to recite a specific function associated with the reduction of citrate expression, such as inhibition of flower formation, reduced sprouting of a tuber and/or improved storage capability of a storage organ in a plant comprising said transgenic plan cell or a plurality of transgenic plant cells.

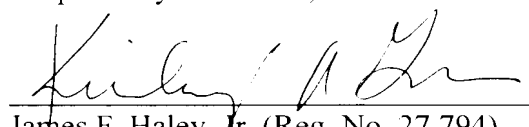
In a November 12, 2002 Preliminary Amendment, applicants canceled claim 84. None of the claims presented herein refers claim 84. Applicants have also adopted the suggestion of the Examiner and amended claims 71 and 104 to recite functional language such as inhibition of flower formation, reduced sprouting of a tuber or improved storage capability of a storage organ in a plant comprising said transgenic plan cell. Applicants have also amended claim 74 to recite that DNA and amino acid sequences have at least 80% identity with the nucleotide sequences of SEQ ID NO: 1, 3, and 5 and 2, 4, and 6, respectively. As amended, the claimed DNA sequences are distinguished over the *A. thaliana* citrate synthase gene of Unger. In view of the amendments, applicants request that the rejections of claims 71, 74–76, 79, 100–101, 104–105, 108, 111–112 and 115–120 be withdrawn.

## CONCLUSION

Applicants request that the Examiner enter the foregoing amendments, consider the foregoing remarks, and pass claims 71, 74-83 and 100-126 to issue.

The Examiner is invited to telephone applicants' representatives regarding any matter that may be handled by telephone to expedite allowance of claims herein.

Respectfully submitted,



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